How to Buy Products with Low Standby Power

Energy Efficiency and Renewable Energy
Federal Energy Management Program

Why Agencies Should Buy Efficient Products

- *Executive Order 13221 directs agencies, when feasible and cost effective, to purchase products that use 1 watt of power or less during standby ("off") mode. Executive Order 13123 and FAR part 23 direct agencies to purchase* ENERGY STAR® *products or FEMP-designated products in the upper 25% of energy efficiency.*
- *Agencies that buy efficient products can save on energy costs and help prevent pollution.*
- *As the world's largest consumer, the federal government can help "pull" the market towards greater energy efficiency, while saving taxpayer dollars.*

For More Information:

- DOE's Federal Energy Management Program (FEMP) Help Desk and web site have up-to-date information on energy-efficient federal procurement, including the latest versions of purchasing recommendations for other products.
  Phone: (800) 363-3732
  www.eere.energy.gov/femp/procurement

- FEMP has an online data base of products that meet this recommendation for low standby power.
  http://oahu.lbl.gov

- Environmental Protection Agency (EPA) has ENERGY STAR® product listings and purchasing specifications for products with low standby power.
  Phone: (888) STAR-YES (782-7937)
  www.energystar.gov/products/

- Lawrence Berkeley National Laboratory provided supporting analysis for this recommendation on products with low standby power.
  Phone: (202) 646-7950

Efficiency Recommendations

Product Type	Recommended Standby Levels	Best Available Standby Level
Office Equipment		
Desktop Computer[a]	2 watts or less	1 watt or less
Integrated Computer[a]	5 watt or less	3 watts or less
Laptop Computer	1 watt or less	1 watt or less
Workstation[a]	2 watts or less	1 watt or less
Computer Monitor	1 watt or less	1 watt or less
Printer[a]	1 watt or less	1 watt or less
Copier	1 watt or less	1 watt or less
Scanner	1 watt or less	1 watt or less
Fax/Printer	2 watts or less	1 watt or less
Multifunction Devices[a]	1 watt or less	1 watt or less
Docking Station	2 watts or less	1 watt or less
Audio/Video Products		
TV	1 watt or less	1 watt or less
VCR	2 watts or less	1 watt or less
TV/VCR/DVD Combo	3 watts or less	1 watt or less
DVD Players	1 watt or less	1 watt or less
Consumer Audio	1 watt or less	1 watt or less
Major Appliances		
Microwave Oven	2 watts or less	2 watts or less

a) If this product is connected to a local area network and operated continuously, then buyers should select products with the lowest possible sleep power level.

Definitions

"Standby power" refers to the electricity used by electrical products when they are switched off or not performing their primary purpose.

An "integrated computer" is a product that combines the processor and display monitor in one case and draws power through a single cord.

A "workstation" is a high-performance desktop computer that can be equipped with multiple processors and is generally dedicated to computationally intensive tasks.

A "multifunction device" is a product that performs two or more of the following: copying, faxing, scanning or printing. Fax machines that do convenience copying (single sheet) are not considered multifunction devices for purpose of determining standby power.

Where to Find Products with Low Standby Power

FEMP maintains an on-line database of products that meet this recommendation. For a current list of models see http://oahu.lbl.gov and click on "Search" or else go to www.eere.energy.gov/femp/procurement, click on "low standby power" and then click on the Standby Power Data Center icon (as shown to right).

FEMP is currently working with the Defense Logistics Agency (DLA) and the General Services Administration (GSA) to help federal buyers identify products with low standby power in catalogs and supply schedules. When buying or specifying any of the products listed in the table above, make sure it qualifies for the ENERGY STAR label and also meets the recommended low standby power level. Some, but not all, ENERGY STAR labeled products have low standby power levels as defined by Executive Order 13221. ENERGY STAR is currently updating their on-line database to include data on low-standby power products based on this efficiency recommendation.

Standby vs. Sleep Modes

For some products, low-power standby mode is different from (lower than) the "sleep" mode required by ENERGY STAR. All ENERGY STAR labeled computers, monitors, copiers, printers, and fax machines switch into a low-power "sleep" mode after a specified period of non-use. When needed, these devices return automatically to active mode (displaying an image, copying, receiving a fax etc.). Standby mode differs because the user—not the machine itself — generally switches off the device and must manually turn it back on.

Identifying Products that Use Standby Power

The only way to be certain if a product consumes standby power is to measure it with a watt-meter. However, here are a few clues to help identify products with standby power:

- *An external power supply (i.e., cell phone chargers, inkjet printers)*
- *A remote control (i.e., TVs, VCRs, ceiling fans, audio equipment).*
- *A continuous digital display (i.e., clothes washers, microwaves, VCRs)*
- *A rechargeable battery (i.e., cordless telephones, battery charger). These products continue to use standby power even after the battery is fully charged.*

Some products without these features also consume standby power. Many switches labeled "off" do not completely shut off power. For example, certain halogen desk lamps with low-voltage power supplies consume power even when the light is off. The only devices that do not consume standby power are those with a switch that physically breaks the circuit.

Cost-Effectiveness Rule of Thumb for Products with Low Standby Power

1 watt saved in standby power = $1.25 savings in lifetime energy costs

Definition

Lifetime energy cost is the sum of the discounted present values of future annual energy costs. Future electricity price trends and a discount rate of 3.0% are based on federal guidelines (effective from April, 2003 to March, 2004).

For example, an agency buying 200 low-standby computer monitors (at 1 watt instead of 3 watts) will save $500 over the life of the monitors. This assumes an average of 6000 hours per year in standby ("off") mode and a typical product life of 4 years. Products with low standby power typically do not cost more to purchase.

What if my Electricity Price or Standby ("Off") Hours are different?

To adjust this rule of thumb for a different electricity price, multiply the typical lifetime energy cost savings above by this ratio: $\left(\frac{Your\ price\ in\ ¢/kWh}{6.0\ ¢/kWh}\right)$. To adjust for different standby "off" hours, multiply the typical lifetime energy cost savings above by this ratio:

$$\left(\frac{Your\ hours}{6000\ hours}\right)$$

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